

SWAN LAKE

NARRATIVE REPORTS

FEBRUARY 1942 - DECEMBER 1942

## ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

DATE: 1-23 1943☒ MR. SALYER☐ MRS. WOODIN☒ MR. EIMER *9 2/6*☐ MRS. GARVIN☒ MR. DUMONT

## SECTION OF HABITAT IMPROVEMENT:

Mr. Kubichek

Mr. Smith

Mr. Griffith

Miss Cook

*REG 1-23-43**rec 2-18-43*☒ SECTION OF OPERATIONS:~~Mr. Krummes~~ *45 3/16*

Mr. Gustafson

Miss Baum

Mrs. Kricun

☒ SECTION OF ERA:~~Mr. Regan~~ *7902 4/2/43*~~Dr. Bourn~~ *1288 7/17/43*

Mrs. Fishman

☒ SECTION OF LAND MANAGEMENT:~~Mr. Tamm~~ *FLB*~~Mr. Ackerknecht~~ *2-19*

## STENOGRAPHERS:

Miss Whorley

☒ SECTION OF STRUCTURES:~~Mr. Tamm~~ *1257 2/10/43*

REMARKS:

SWAN LAKE NARRATIVE REPORT

SEPTEMBER - DECEMBER 1942

Return to: Miss Cook

R  
Swan Lake  
Narrative Report

Swan Lake Refuge  
Sumner, Missouri  
January 16, 1943

Regional Director,  
Fish And Wildlife Service,  
828 Plymouth Building,  
Minneapolis, Minnesota.

Dear Mr. Maurek:

Reference is made to Mr. Janzen's letter of January 12 regarding the narrative report submitted by Mr. Thornsberry for the Period September-December 1942.

Mr. Thornsberry and I have prepared the NR forms from Mr. Krumm's itinerary and all other available data which we were able to find. It is believed that this report is fairly accurate, though it may vary from reports submitted by Mr. Krumm. Neither Mr. Thornsberry nor I are very familiar with the files on Swan Lake Refuge.

Very truly yours,

  
Clarence E. Harness  
Asst. Civil Engineer.





REFUGE NARRATIVE REPORT  
SWAN LAKE NATIONAL WILDLIFE REFUGE  
September 1 to December 31, 1942

1. General.

The general work program at this station is now well advanced despite the shortage of labor caused by the war. The Refuge Manager was inducted into military service during this period.

Two of the three pools planned for the refuge are now in operation including Silver Lake in the Upper Pool and the Swan Lake unit. These pools have been filled to the desired levels and some 3500 acres of marsh and water are now available for migratory waterfowl.

During previous fall flights the birds were forced to concentrate in shallow pits, creek and river channels or continue their migration.

About 400,000 waterfowl concentrated at the refuge this fall as compared to a peak concentration of 300,000 in 1941. Canada geese were also observed in number for the first time in 20 years. Some 500 geese are on the refuge at this date. Only small flocks of geese were observed during previous fall migrations.

Bald eagles, mostly immature birds appeared at the refuge in numbers this fall. Single birds or pairs have been observed during past years. In December eleven birds could be observed in the flooded timber of the Upper Pool.



## Water Conditions.

1942	Snow	Rainfall	Max. Temp.	Min. Temp.
September		1.74	92	27
October		2.81	85	16
November		3.41	79	16
December	8"	2.47	52	7

Readings were the Brookfield, Missouri Station B. weather conditions.

The Upper Pool filled to approximately 1.8 ft. of full capacity twice this period, and it was necessary to operate the control gate from December 3 to this date to lower the pool in compliance with previous instructions.

Canada Goose ✓ (*Branta Canadensis canadensis*)

First Migration October 11, 1942.

Period of maximum abundance October 26, 1942.

Remarks: A flock of 450 to 500 birds are wintering on the refuge this season.

Blue Goose ✓ "Lesser Snow Goose" (*Chenc Caerulescens*)

Several flocks of 50 to 500 birds were observed during October. Period of maximum abundance October 25 and 26.

Common Mallard ✓ (*Anas platyrhynchos*)

First migration September 15. Period of maximum abundance October 27, 50,000. November 14 to December 27 200,000.

Remarks: Several thousand mallards are wintering at the refuge this season.

Black Duck ✓ (*Anas Rubripes*)

Remarks: Scattered birds were noted among flocks of Common Mallards from October 27 to date. A few birds are wintering at the refuge.

Gadwall ✓

First migration Oct. 11    Period of max abundance  
Oct. 11 to Nov. 27    2000 to 3000.

Remarks:    This bird appeared at the refuge in considerable numbers this season.

Baldpate ✓

First migration Oct. 11 period of max. abundance Oct.  
27 to Nov. 27 last noted migrant Dec. 6

Remarks:    Common fall migrant est. about 5000 at  
Refuge

American Pintail ✓

First migration Oct. 11 Period of max. abundance  
Oct. 17 to Dec. 7    Est. 100,000 last noted Dec. 7

Green Winged Teal ✓

First migration Oct. 5 Period of max. abundance Oct.  
11 to Nov. 27    est. 5000, last noted Dec. 5

Blue Winged Teal ✓

First Migration Aug. 25    Height of migration Sept. 28  
to Nov. 20 est. 5000, Last noted as Migration Nov. 27

Shoveler ✓

First migration Sept. 20    period of max. abundance  
Oct. 5 to Nov. 10    Last noted Nov. 27.

Wood Duck ✓

First migration Aug. 10 period of max. abundance  
Sept. to Oct. 5    last noted Nov. 5 approximately 1000  
birds noted on Upper Pool.

Red Head ✓

First migration Oct. 5

Period of max. abundance Oct. 20 to Nov. 27.

Remarks: last noted Dec. 5

Ring Neck Duck ✓

First migration Oct. 5

Period of max. abundance Oct. 5 to Nov. 27

Remarks: Last noted Nov. 28

Lesser Scaup ✓

First Migration Oct . 5

Period of Max. abundance Oct. 17 to Nov27

Last noted Dec. 12

Goldeneye ✓

First migration Oct. 17 to Nov. 27

Remarks: Several birds noted on upper pool.

Ruddy Duck ✓

Several birds noted on Upper Pool Oct. 17. Hunters report  
the largest constration of these ducks in years.

{ American Merganser (250)

{ Hooded Merganser (250)

Remarks: Afew of these birds observed during November  
and December. American Merganser are Wintering at the refuge  
est. 500 birds.



The 1942 fall flight was the heaviest observed here since establishment of the refuge.

Several thousand birds are also wintering here, feeding in cornfields near refuge headquarters. Feeding conditions have been ideal for waterfowl this season.

#### Upland Game Birds

Prairie Chickens are not wintering at the refuge in numbers as in 1940-41. These birds have migrated north to the uplands. only a few birds were observed during the fall and winter months. Probably due to flooding of the refuge bottoms and presence of water in the grain fields provided for breeding grounds.

The Bob-white there has been considerable increase in these birds on the refuge and adjacent uplands this fall.

Fur Bearing Animals. Predators, Rodents and other animals.

There has been a general increase in fur bearers each year since establishment of the refuge. And it will be possible to harvest surplus furs of mink, striped and spotted skunk and probably muskrats by the 1943-44 season. These animals were disturbed and probably driven to upland by heavy rains and floods this season.

From two to four coyotes are usually present on the refuge. These animals have not been observed in as large numbers this season, due to flooding of the lower or Swan Lake pool.

## Fish

Conditions for fish life are improving in the refuge pools as aquatic vegetation has become established in some sections. The water has cleared up remarkably well. Some numbers of bullheads, catfish, crappie and bluegills are already established in the Upper and Lower Pools. They are in sufficient numbers to permit fishing in the Spring of 1943. public fishing and etc. will be furnished in a detail plan to be submitted at a later date.

## Refuge Development and maintenance

### Physical Development

Small levee or (plug) below no 3 levee along elk creek washed out by large flood in June 1942. It was replaced with caterpillar tractor and slip. Approximately 400 yards of dirt was put in three major holes on no 4 levee. Development has been curtailed by the war. More dirt will be moved when the weather permits. As levee and weather conditions were generally unfavorable for operation of heavy machinery this fall and winter no attempt were made to operate the last 2 months.

### Hunting

Most of the local hunting clubs and individual hunters contacted this fall reported good shooting in the vicinity of Swan Lake. All stated that the flight was the heaviest in many years more hunters were shooting in cornfields adjacent to the refuge this season than in 1940-41 many coming from K. C. and near by towns.

Post offices at local villages of Sumner and Mendon report considerable increase in the number of stamps sold to hunters. This is thought to be due to the checking of hunters along roads and fields adjacent to the refuge by state and federal agents. We recommend more patrol work be done in the future during migration seasons.

#### Visitors

About 300 visitors stopped at the refuge during Nov. and Dec. when roads and weather conditions were suitable. Many stated they wanted to see the refuge before gas ration.

Several officials inspecting the refuge this quarter included Mr. D. H. Janzen, Mr. W. E. Hall, Mr. F. C. Gillett and Mr. C. E. Harness. State Officials visiting the refuge included conservation agents Asbury Roberts, Joe Green and County shireff Widmer.

Vilation There were no violation brought to our attention this season. Many hunters were checked for stamps and bag limit. This procedure increased the sale of duck stamps.

#### Economic uses of Refuge

Several grazing permits were issued by Mr. Brumm during the fall season it is recomened that a permit be issued for a larger area to be grazed next season .

Several wood permits were issued this Season

#### Coporative Farming Permittee

Downey and Thornsberry	200 A.
John Shafer	80 A.
Willams Bros.	40 A.
Maurice Willams	40 A.



J. R. Fox	100	A.
E. H. Smith	30	A.
Howard Lucas	60	A.

This season we have received no complaints from farmers of waterfowl feeding in cornfields. The corn stood up well and was picked with a picker before the fall migration.

Bird Banding .

A bird banding station was opened at the refuge last season. But due to the shortage of labor operation was suspended until a later date.

*Charles A. Thornsberry*

CHAS A. THORNSBERRY

REFUGE AID

Approved:

*Burnie Maurek*  
Regional Director

1-22-43 Date



100	A.	J. R. Fox
30	A.	E. R. Smith
60	A.	Howard Lucas

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waterfowl feeding in cornfields. The corn stood up well and was  
picked with a picker before the fall migration.

#### Bird Banding

A bird banding station was opened at the refuge last season.  
But due to the shortage of fuel or operation was suspended until  
a later date.

CHARLES A. THOMPSON

WATERFOWL

Approved:

*James H. ...*  
Regional Director

Date



## MIGRATORY BIRDS

Refuge Swan Lake National Wildlife Months of September to December, 1942

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Canada Goose	25	10/11/42	10/20	2000	10/26	Wintering on Refuge		None			2000 500
Blue Goose	16	10/11	10/20	500	10/25	200	11/27	None			500
Common Mallard	25	9/15	10/27	200,000	11/14	Wintering on Refuge		None			200,000 10,000
Black Duck	25	10/27	11/11	200	12/5	Wintering on Refuge		None			200
Gadwall	50	10/11	10/27	2500	11/27	2500	11/29	None			2500
Baldpate	12	10/11	10/27	200	11/27	100	12/5	None			200 5,000
American Pintail	100	10/11	11/27	100,000	12/5	50,000	12/7	None			100,000
Green Winged Teal	5	10/5	10/11	5000	11/27	20	12/5	None			5000
Blue Winged Teal	25	8/25	9/28	5000	11/20	5000	11/27	None			5000
Shoveler	10	9/20	10/5	500	11/10	20	11/27	None			500
Wood Duck	500	8/10	9/1	1000	10/5	500	11/5	None			1000

REMARKS: (Pertinent information not specifically requested)

# in Col. 7 represent population  
made at end of period



## INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

\* Only columns applicable to the period covered should be used.

## MIGRATORY BIRDS

Refuge Swan Lake National WildlifeMonths of September to December, 1942

1612

(1) Species  Common Name	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Red Head	2	10/5	10/11	200	10/30	5	11/27	None			200
Ring Neck	200	10/5	10/5	200	10/5	25	11/27	None			200
Lesser Scaup	200	10/5	10/10	1500	10/17	50	12/12	None			1500
Golden Eye	2	10/17	11/11	10	11/20	2	11/27	None			10
Ruddy Duck	15	10/17	11/1	500	11/10	25	11/25	None			500
American Merganser	5	11/28	12/5	250	12/31	Wintering on Refuge		None			250
Hooded Merganser	5	11/28	12/5	250	12/31	Wintering on Refuge		None			250

REMARKS: (Pertinent information not specifically requested)



# INSTRUCTIONS

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Gaviidae through Strigidae; also doves and  
woodcocks)\*

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on the Gulf Coast, use only the columns that apply.

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in A.O.U. order. General terms are to be  
avoided, such as "scaup", "teal", etc.;  
use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species  
during spring migration, fall migration,  
wintering, or summering, and the number  
observed. In the case of resident species  
this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the  
refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present  
on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species  
during the spring or fall migration,  
wintering, or summering, and the numbers  
observed exclusive of obvious cripples  
or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based  
upon observations and actual counts on  
representative breeding areas. Brood  
counts should be made on two or more areas  
aggregating 10% of the breeding habitat.  
Estimates having no basis in fact are to  
be omitted.
- (7) TOTAL: Estimated total number of the species using  
the refuge during the period. This figure may  
or may not be more than that used for peak  
concentrations, depending upon the manner in  
which birds come through; i.e., in waves or  
all at once. On refuges representing the  
terminus of the flight lane, the figures  
would probably be the same in many cases.

\* Only columns applicable to the period covered should be used.



Refuge Swan Lake National WildlifeMonths of September to December, 1942

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificioally requested. List introductions here.
Prairie Chicken	Fair, 300 Acres	10	0	0	-	0	0	0	30	30 birds observed on east side of refuge.
Bob White	Good, 500 Acres	2	17	200	50-50	0	0	0	250	Conditions ideal for quail.

\* Only columns applicable to the period covered should be used.



## INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\* Only columns applicable to the period covered should be used.

Refuge Swan Lake Wildlife RefugeYear 1942

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population as of Dec. 31	(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Losses	Number	Source		Percentage
None													



# INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.) exclusive of fenced herds. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge as of December 31.
- (8) SEX RATION: Indicate the percentage of males and females of each species as determined from field observations or through removals.



Refuge Swan Lake National Wildlife Year 194 2Botulism NoneLead Poisoning or other Disease None

Period of outbreak \_\_\_\_\_

Period of heaviest losses \_\_\_\_\_

## Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.)

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease \_\_\_\_\_

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_

Refuge Swan Lake National WildlifeYear 1942

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number removed for Restocking
		Man days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	
Bullheads	Good	None		None		None		None
Catfish	Good	None		None		None		None
Crappie	Good	None		None		None		None
Blue Gill	Good	None		None		None		None
Drum	Very good	None		None		None		None
Big Mouth Bass	Good	None		None		None		None
<u>Rock Bass</u>								
Carp	Many	None		None		None		None
Buffalo	Many	None		None		None		None
Note: There is a good stock of all of the above species of fish, but no fishing has been permitted on this refuge to date. The only activity regarding fish on this refuge has been to rescue fish stranded by flood waters.								

REMARKS:

PLANTINGS  
(Marsh - Aquatic - Upland)

Refuge Swan Lake National WildlifeYear 1948

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
Bulrush, Hardstem	Swan Lake	1/14 Lb/Yd.	1000 Yds.	75 Lbs. seed.	5/6	None	Flood Water	
Potamogeton, Leafy	Swan Lake	3Lbs/Ac.	5 Ac.	15 Lbs. leaves	No. record	None	Flood Water	
Dried Naias	Swan Lake	?	?	5 Bags	4/23	None	Flood Water	
Red Top	Levees 1,3,4,5 & Spillway	10#/Ac.	30Ac.	300 Lbs.	Apr-May	80%		
Lespedeza	N. of Swan Lake	10#/Ac.	5 Ac.	50 Lbs.	May	60%		
Oats & Rye	Levees	1 Bu/Ac.	35 Ac.	35 Bu.				
Timothy	Levee 1&3	2/3#/Ac.	21 Ac.	15 Lbs.	May	60%	Flood Water.	
Red Cedar	Both Headquarters	12' Spac.	7 Ac.	2040	Mar-Apr	25%	Rodents And	Weather Conditions
Elm	2-Hdgrs	30'	10 Ac.	500	April	90%		
Mulberry	2-Hdgrs	12'	2 Ac.	500	4/8	80%		
Honey Locust	Hdgrs Rail Pk.	30'	1 Ac.	50	3/3	80%		
Osage Orange	S. side Swan Lake	25,56/21, & 52/55/21, 3'x10'	25Ac.	10,000	4/7	70%		
Willow	s. shore Swan Lake	3'	400 Yds.	1000 cuttings	3/9	70%		
Wild Plum	E. side refuge & rail Fence		10 Ac.	5000	April	50%		
Sumac	Rail Fence	5000/Ac.	1 Ac.	5000	April	60%		
Rose, Wild	Rail Fence	500/Ac.	1 Ac.	500	April	70%		
Blackberry	Rail Fence	500/Ac.	1 Ac.	500	April	70%		
Buckbrush	Secondary	40/yd.	500 Yds.	20,000	Apr-May	80%		

## TOTAL ACREAGE PLANTED:

Marsh and aquatic 7 Ac  
Hedgerows, cover patches 30 Ac.  
Food strips, food patches 3/4 Ac.  
Forest plantings 10 Ac.



Refuge Swan Lake WildlifeYear 1942

Permittee (If Farmed by Refuge, Indicate)	Permit No.	Unit or Location	Actual Acreage Cropped	Crops Grown	Avg. Yield Per Acre	No. Bu. Har- vested	Acres Left Stand- ing	Compensatory Services	Cash Receipts to Refuge
Maurice Williams	5422	S. 36/56/21	15 Ac.	Wheat	Destroyed by	Floods.			
Maurice Williams	5438	S. 36/56/21	40	Corn	Destroyed by	Floods.			
<del>XXXXXXXXXXXXXXXXXXXX</del>									
John Schafer	6776	S. 25-36/56/21	40	Corn	Destroyed by	Floods.			
			20	Oats	Destroyed by	Floods.			
			20	Soy Beans	Destroyed by	Flood and 2nd crop by Frost.			
J. R. Fox	6777	S. 4/55/20	50	Corn	Destroyed by	Floods.			
			20	Oats	Destroyed by	Floods.			
			30	Soy Beans	Destroyed by	Frost.			
Howard Lucas	6778	S. 3/55/20	60	Corn	Destroyed by	Floods.			
Downey & Thornberry	6791	S. 2/55/21	100	Corn	50	3600	1400		Used for feed.
			40	Oats	20	800	0	(Special Agreement)	None
	50% (Damaged by flood)		60	Soy Beans	15	390	0	(Special Agreement)	None.
									Total

495

## Summary of Crops Grown:

Crops	Acreage	Refuge Share Bu. Harvested	Acres left Standing
Corn	33 1/3 (Refuge Share)	300 bu. (6 AC)	27 1/3
Oats		0	0 (Special planting agreement)
Soy Beans		0	0 (Special planting agreement)



COLLECTIONS AND RECEIPTS OF PLANTING CHECK  
(Seeds, rootstocks, trees, shrubs)

1620

Refuge Swan Lake National WildlifeYear 1942

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
Smartweed (seed)	5000 Lbs.	September	Combined	1 2/3 c per lb.			3000	3000
Bluegrass (seed)	5000 Lbs	June	Harvested	1.00/ cwt. green	\$50.00	Spec.Use permit.	0	0
Timothy (seed)	114 Bu.	July	Bound & Threshed	80c/bu.	91.20	Spec.Use permit.	0	0
Honey Locust	50	March	Transplanted	WPA Labor	Planted on	Refuge.		
Willow	1000 cuttings	March	Cuttings	WPA Labor	Planted on	Refuge.		
Wild Plum	1000	April	Transplanted	WPA Labor	Planted on	Refuge.		
Sumac	5000	April	Transplanted	WPA Labor	Planted on	Refuge.		
Blackberry	500	April	Transplanted	WPA Labor	Planted on	Refuge.		

Refuge Swan Lake National Wildlife Year 194 2

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
Reams Downey	5433	826/56/21	15		20	Aug. 1-Sept.30	1.50	30.00	Haying
Aroh McGilvray	<del>5445</del> No. 1	No. 1		27	50	Oct. 1-Nov. 30	.50	13.50	Grazing
James C. Barnett	8254	531/56/20	8.42	(10) Mo.	<del>112x</del>	Sept.16-Dec.31	1.00	8.42	Grazing
J. R. Fox	7455	53/55/20	100/6 Mo.	(66)		June and Oct.	1.00	33.34 <del>100x66</del>	Grazing

## Totals:

Acreage grazed 123.42Animal use months 133Total income Grazing 55.26Acreage cut for hay 15Tons of hay cut 20Total income Haying 30.00

Refuge Swan Lake National WildlifeYear 194 2

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B.F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Ellison Pitney	5428	Refuge		3 cords	\$0.75	\$2.25	Dead and down timber.	
Curry West	5429	"		2 "	.75	1.50		"
J. C. Garton	5430	"		10 "	.75	7.50		"
C. L. Lantz	5431	"		10 "	.75	7.50		"
John Schafer	5432	"		10 "	.75	7.50		"
V. E. Grothe	5433	"		2 "	.75	1.50		"
Frank Linscott	5434	"		10 "	.75	7.50		"
Amos Daugherty	5435	"		6 "	.75	4.50		"
Reams Downey	5445	"		10 "	.75	7.50		"
Gerald Oden	5446	"		10 "	.75	7.50		"
Frank Linscott	5449	"		10 "	.75	7.50		"

Total acreage cut over \_\_\_\_\_

Total income 62.25

No. of units removed B. F. \_\_\_\_\_

Method of slash disposal \_\_\_\_\_

Cords 83

Ties \_\_\_\_\_

No. of copies received 2

Number of copies to be sent

Amount received

Amount paid



Receipt No.	Description of thing	Amount	Value	Amount paid	Amount received	Amount paid	Amount received
1000	...	...	...	...	...	...	...
1001	...	...	...	...	...	...	...
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## ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

DATE: 9-16 1942☒ MR. SALYER☐ MRS. WOODIN☒ MR. ELMER☐ MRS. GARVIN☒ MR. DUMONT☒ SECTION OF HABITAT IMPROVEMENT:

Mr. Kubichek

Mr. Smith

~~Mr. G. Smith~~

Miss Cook

☒ SECTION OF OPERATIONS:~~Mr. K. James~~~~Mr. Gustafson~~

Miss Baum

Mrs. Kricun

☒ SECTION OF ERA:~~Mr. Regan~~~~Dr. Bourn~~

Mrs. Fishman

☒ SECTION OF LAND MANAGEMENT:~~Mr. Tamm~~~~Mr. Ackerknecht~~

## STENOGRAPHERS:

Miss Whorley

☒ SECTION OF STRUCTURES:~~Mr. Taylor~~

REMARKS:

SWAN LAKE NATL WILDLIFE REFUGE NARRATIVE REPORT

MAY - AUGUST 1942

Return to: Miss Cook

## REFUGE NARRATIVE REPORT

Swan Lake National Wildlife Refuge  
May 1 - August 31, 1942

### I. GENERAL

The general work program at this station is now well advanced despite closing of Federal work agencies during the above period. Two of the three pools planned for the refuge are now in operation, including the Silver Lake or "upper pool", and the Swan Lake unit. These units have been filled to the desired levels and some 3500 acres of marsh and water are now available for migratory waterfowl. All major construction, except levees for the proposed No. 3 pool, has been completed, including spillways, control gates, and buildings at primary and secondary headquarters; and the early closing of the work agencies will not seriously interfere with future operations.

#### A. Weather Conditions

(1942)	<u>Precipitation</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
May	5.92	91	40
June	11.73	96	49
July	2.85	96	56
August	4.20	95	55
Total -	24.70	High - 96	Low - 40

#### B. Water Conditions

The water level in the upper pool at this time is approximately 1.8 feet below spillway, and that of the new Swan Lake unit is approximately 1 foot below full reservoir. These levels are considered satisfactory in that adequate water and marsh areas are made available without erosion of the levees by wave action.

Rainfall during this period totalled 24.70 inches as compared to 13.18 inches during the corresponding season in 1941. Runoff from the upper pool amounted to approximately 72,000 acre-feet as compared to approximately 4,175 feet during the corresponding season of last year.

During the period June 26-29 one of the most severe floods on record occurred here. Continuous heavy rains of "cloudburst" proportions flooded creeks and rivers in the area to near record flood stages, giving



the refuge levees and control structures a severe test. The entire refuge area, except small upland tracts adjacent to the primary and secondary headquarters, was covered by flood water. The two pools were filled to capacity and water lapped onto the roadway on the dykes at a few low points.

At the height of the flood it was necessary to recruit crews of laborers in the nearby villages of Sumner and Mendon, and throw up embankments of earth and sandbags at points where water threatened to overtop the levees. Although the levees and spillways were taxed to capacity, the embankments held and the refuge came through the flood with remarkably little damage. Some wash occurred around the No. 5 control gate outlet, the crushed rock roadway across the upper spillway was washed out, and creek bottom fencing was flattened; but generally speaking, property damage was light. Necessary repairs and cleanup were largely completed by our WPA unit before that agency closed in July.

## II. WILDLIFE

### A. Migratory Birds

(1) Waterfowl - A small number of waterfowl remained at the refuge through the summer months. Wood ducks nested again in some numbers along the refuge creeks and in the flooded timber on the upper pool. A few mallards nested in the refuge bottoms again this season, two nests being discovered and two broods of young noted on the upper pool. A few scattered pintails were also observed during the nesting season, evidently non-breeding birds which remained through the summer. Some migration and local concentration of wood ducks and blue-winged teal was noted in August. A flock of twenty blue-winged teal was noted August 2 (first migration) and wood ducks began to flock on the lakes during the first week in August.

(2) Other - Large numbers of American egrets concentrated on the refuge lakes again during July and August. Blue herons and little green herons were also present in considerable numbers through the summer months. The egrets and blue herons were frequently observed feeding around the outlets of the control gates where schools of small fish were attempting to gain access to the refuge lakes.

(3) Food and Cover - Food and cover conditions were good on the refuge pools during the late summer despite floods and silt which hampered growth earlier in the season. Large beds of smartweed have developed in shallow water areas in both pools, and other floating and emergent vegetation is beginning to appear in the recently flooded areas. Minnows, crayfish, tadpoles, and insects appearing in the pools are attracting an increasing number of herons, bitterns, rails and other marsh birds each summer.

## B. Upland Game Birds

Quail are abundant this season and coveys have been noted in sections of the refuge where none were observed in previous seasons. These birds apparently were not seriously affected by the disastrous floods of late June, as they appeared as numerous as ever over the refuge after the waters had receded. These birds evidently moved to knolls and levees during the high water and survived without serious losses.

Prairie chickens nesting in the refuge bottoms were driven to higher land and young birds were apparently harmed by the early summer floods. Adult birds took to the levees and knolls during the early stages of the 10-day period of high water in late June. No young birds were noted at that time and old birds apparently migrated to the uplands north of the refuge after feeding along the levees for several days. Prairie chickens have used the refuge chiefly as a wintering and booming ground during the winter and spring months, and most of the flocks migrate to the uplands north and east of the refuge during the nesting season, although a few remain to nest on the refuge. For this reason the number of young birds destroyed by the flood was not large.

Cover is abundant over the refuge and about 100 acres of cultivated crops will be available for winter feed this season for upland game birds.

## D. Fur Animals, Predators, Rodents, and Other Mammals

Fur animals are continuing to increase, particularly raccoon, muskrat, and opossum. Signs of these animals are plentiful along the refuge creeks, lakes, and old building sites. Muskrats are not molesting the dykes as yet, as they show a preference for creek banks and shallow water at the upper end of the refuge pools. Fur bearers and other small animals apparently survived the floods without serious losses.

A few coyotes are present on the area - usually animals driven into the refuge by hounds. Scats examined along the trails frequented by coyotes indicate their principal foods are mice and cottontail rabbits. Stray cats and mongrel dogs from nearby villages and farms appear to molest wildlife to a greater extent than natural predators, and there is evidence that dogs are responsible for most livestock and poultry depredations on nearby farms, although such damage is usually attributed to coyotes. On one occasion the refuge patrolman observed four dogs attacking a flock of sheep on a farm near the secondary headquarters. The farmer was notified and two of the animals were shot, the others escaping after several sheep had been maimed or killed. Control measures will be carried on when necessary for predators by trapping during fur season. Stray dogs and cats are being controlled by impounding (hounds or dogs) and destroying animals known to be without owners.

## E. Predacious Birds

Marsh hawks are abundant at the refuge and numerous nests were



noted in the field. An occasional bald eagle <sup>✓</sup> was observed during the summer. Crows are very abundant this season, apparently attracted by refuse left by floods.

#### F. Fish <sup>✓</sup>

Conditions are improving for fish in refuge waters as aquatic vegetation is increasing and the refuge pools clear up well after floods. Large numbers of bullheads, crappie, catfish, and some bass were deposited in the lakes by the June flood, and both pools are now fairly well stocked with native species. A large number of fish were stranded below the upper spillway when the flood waters receded at that time, and it became necessary to rescue and move game fish deposited there to the Upper Lake. An estimated 2000 pounds of game fish, chiefly bullhead and crappie and a few bass, were taken below the concrete core wall and released in the upper pool.

### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development

The No. 4 levee was completed by CCC in May and the Swan Lake pool north of the headquarters site is now in operation. This unit was filled by the June flood and now contains some 1200 acres of water.

The outlet of the No. 5 control gate which was washed to some extent by flood water was repaired and rock riprap was placed in the channel to prevent further damage.

A 12x14' frame building was moved to secondary headquarters and remodeled in accordance with the standard type poultry house plans. These jobs were completed by WPA under direction of refuge personnel.

The crushed rock roadway across the upper spillway which was washed out during the flood, was replaced in July. Approximately two miles of fencing was repaired and cleaned off in June and July. These projects were also completed by WPA, using refuge equipment.

Roads and trails, refuge courtyards, etc., have been mowed and dragged as often as practicable throughout the summer.

#### B. Plantings

Aquatic and Marsh Plants - Fifteen pounds of sago pondweed <sup>✓</sup> seed, five bags of Nais pondweed, and 75 pounds of bulrush seed were planted during this period. Severe floods and the heavy silt content of the water during the early summer hampered growth of aquatic vegetation, but some growth resulted from plant material introduced in the pondweed plantings.

*More seed  
to be  
received  
for 43  
planting  
BGS*

Cultivated Crops (Cooperative Farming) - Cultivated crops planted at the refuge during the 1942 season included 354 acres of corn, 80 acres of oats, 112 acres of soybeans, 65 acres of wheat, and 40 acres of Korean lespedeza. About 230 acres of the corn crop, 60 acres of oats, and the wheat fields were destroyed or badly damaged by floods; but the remaining corn, soybean and oat crops will provide considerable feed for wildlife during the winter months.

#### IV. ECONOMIC USE OF REFUGE

##### A. Grazing

Three grazing permits were issued during this period, involving the grazing of 130 head of livestock for 295 animal-months use. Revenue collected on these permits to September 1 totalled \$65.17. Two of these permits were of one month's duration, to cover emergency grazing of livestock left without pasture by the June flood.

##### B. Haying

One haying permit was issued involving harvest of approximately 20 tons of hay at \$1.50 per ton. The principal demand for hay at present is for small patches of timothy or lespedeza adjacent to the refuge boundary as wild hay apparently has little market value.

##### E. Other Uses

One permit was issued for harvest of bluegrass seed at the prevailing local rate. 4,700 pounds were stripped this season, and revenue collected amounted to \$47.00.

One permit was issued for harvesting of timothy seed. 114 bushels of seed were harvested and revenue from this permit totalled \$91.20.

*Letter to  
Reo. say  
using seed  
for dykes  
PCC*

#### VI. PUBLIC RELATIONS

##### A. Recreational Uses

The public recreational area on the north shore of Swan Lake has been used considerably this summer by picnic parties, and it is estimated that 600 visitors used this area during the summer.

##### B. Refuge Visitors

Official visitors at the refuge this period included Mr. F. C. Gillett, Regional Refuge Supervisor; Mr. John A. Pritchard, Government Hunter; Mr. W. E. Hall, District Engineer; and Mr. Mottesheard of the Federal Aid Division.

Agent Gamble, local representative of the State Conservation Department, visited the refuge in July and assisted in rescuing game fish stranded by the flood.

A number of persons from nearby communities and cities also stopped at the refuge headquarters during this period to visit the area, and view the lakes.

#### VII. GENERAL ITEMS

The CCC camp was closed in May after completing major construction projects planned for the fiscal year 1942. Property left by this Company has been transferred to the War Department except a few pieces of equipment left at the refuge for fire and flood protection.

The Service-sponsored WPA project at this station was discontinued July 28. This agency operated approximately seven months and accomplished considerable cleanup and planting work and minor construction during this period.

Submitted September 9, 1942

Kenneth K. Krumm  
Kenneth K. Krumm  
Jr. Refuge Manager

Approved

Burnie Maurek  
9/15/42





Agent Smith, local representative of the State Conservation Department, visited the refuge in July and assisted in rescuing game fish stranded by the flood.

A number of persons from nearby communities and cities also stopped at the refuge headquarters during this period to visit the area, and view the lakes.

# VII. GENERAL ITEMS

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The Service-sponsored WPA project at this station was discontinued July 28. This agency operated approximately seven months and accomplished considerable cleanup and planting work and minor construction during this period.

*[Signature]*  
Kenneth K. Brown  
Refuge Manager

Submitted September 9, 1942  
*[Signature]*  
Approved  
9/14/42



## MIGRATORY BIRDS

Refuge Swan Lake NW Refuge Months of May to August, 1942

1612

(1) Species		(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name		Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Mallard		-	-	-	-	-	-	-	2	9	-	75
Blue-winged teal		20	Aug. 2	-	-	-	-	-	-	-	-	migrant
Wood duck		50	Aug. 7	Aug. 25	-	-	-	-	-	-	250	500

REMARKS: (Pertinent information not specifically requested)

Includes nesting data only for mallard

# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

\* Only columns applicable to the period covered should be used.



Refuge Swan Lake NW RefugeMonths of May to August, 1942

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd. Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificioally requested. List introductions here.
Greater prairie chicken	blue grass,red-top	1,000	-	-	-	-	-	40	Nesting and broods broken up by early summer floods

## INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\* Only columns applicable to the period covered should be used.



1613



## ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

DATE: 5-25-1942☒ MR. SALYER

SECTION OF HABITAT IMPROVEMENT:

☒ ~~MRS. WOODIN~~ *New 6/4*

Mr. Kubichek

☒ MR. ELMER

Mr. Smith

MRS. GARVIN

~~Mr. Griffith~~ *REG 6/1/42*☒ MR. DUMONT *PAD 7/27*~~Miss Cook~~ *WVC 9-29-42*☒ SECTION OF OPERATIONS:☒ SECTION OF ERA:~~Mr. Krummes~~ *WV 6/21*~~Mr. Regan~~ *WVC 7/14/42*~~Mr. Gustafson~~ *WV 7/3*~~Dr. Bourn~~ *WVC 6/30/42*☒ Miss Baum

Mrs. Fishman

Mrs. Kricun

☒ SECTION OF LAND MANAGEMENT:

STENOGRAPHERS:

~~Mr. Eornshaw~~ *B*

Miss Whorley

~~Mr. Ackerknecht~~ *WVC 7-24*☒ SECTION OF STRUCTURES:~~Mr. Taylor~~ *WVC 5/20*

REMARKS:

*Swan Lake Sanctuary*  
*February - April 1942*

Return to:

*Div. Files*



SWAN LAKE NATIONAL WILDLIFE REFUGE

Quarterly Narrative Report  
February, March, and April, 1942

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5/22/42

## SWAN LAKE NATIONAL WILDLIFE REFUGE

### Quarterly Narrative Report February, March, and April, 1942

#### I. GENERAL

Principal field activities at this station during the February-April quarter included field planting of trees and shrubs, landscaping, seeding, general cleanup work, and maintenance of equipment, grounds, and buildings.

The important features of the refuge development program have been finished or are nearing completion at this time, with the exception of the levee for the proposed No. 3 pool, and minor construction items left by closing of the Swan Lake CCC Camp. It is expected that the last section of levee under construction by CCC on the Big Swan Lake unit will be finished June 1; and two pools, comprising some 3500 acres of water and marshland, will be in operation after that date. Necessary buildings, water control structures and spillways, essential boundary fencing, and other major construction items have been completed. Unfinished items will be completed as far as possible with the WPA unit now operating at the refuge. For the most part, the work program is sufficiently advanced to permit satisfactory operation of the refuge despite prospective closing of work relief agencies now operating on the project.

#### A. Weather Conditions

	<u>Snowfall</u>	<u>Rainfall</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
February	11" (approx.)	4.24	56	6
March	--	1.62	76	16
April	--	3.56	86	28
Total	11	9.42	(Extr.) 86	6

(Gauge readings, Brookfield, Mo. station).

B. Water Conditions

Precipitation and runoff were exceptionally heavy during this period, approximately 9.42" of rain falling, as compared to 4.05" during the corresponding period in 1941. A severe blizzard occurring on February 23 blanketed the area with 11 inches of snow, blocking roads and hampering field work for several days.

The upper pool, only controlled unit now in operation at the refuge, filled to 666.6 - 666.9 on several occasions, water flowing through the center channel of the spillway for several days at these levels. On February 16 and April 12 the water level in this unit attained a height of approximately 667, water flowing through the entire spillway channel. The control gate of this pool was in operation from February 7 to 13, February 16 to March 4, March 7 to 29th, and April 9 to 30th, to release flood water. Approximately 40,000 acre-feet of water were released from the unit during this period, as compared to approximately 8,000 acre-feet during the corresponding quarter in 1941.

II. WILDLIFE

A. Waterfowl

Common canada goose (*Branta canadensis canadensis*)

First migration noted: Jan. 26, flock of 250 birds appeared at refuge. Main wave of migration began Mar. 6. Small flocks of 20 to 100 birds observed to Mar. 16; some increase in number after that date.

Period of max. abundance & Number: Mar. 16 - Apr. 10. About 400 birds feeding daily on refuge during this period.

Last observed as migrant: A few small flocks were present at the refuge April 20.



Remarks: First migration observed Jan. 26; flock of 250 Canada geese appeared at refuge, unusually early migration. This flock remained throughout February, feeding in cornfields and resting on the refuge pools. Small flocks of Canada geese began to appear Mar. 8, and the heaviest migration occurred between Mar. 16 & Apr. 10. Largest concentration of birds observed - 400. These geese were observed in small flocks and no large concentrations were noted at any time this season.

Lesser snow goose (*Chen hyperborea hyperborea*)

First migration noted: Mar. 7, flock of 200 (mixed) blue and snow geese observed.

Period of max. abundance & Number: Mar. 15-20, and Apr. 1-10, approx. 500 birds.

Last observed as migrant: Some snow geese observed in mixed flocks (with blue geese) up to Apr. 20.

Remarks: Small numbers of lesser snow geese were noted in mixed flocks (with blue geese) through March and the first 3 weeks in April. The largest number observed at the height of migration did not exceed 500 birds. The height of the migration occurred from Mar. 15-20 and Apr. 1-10. Heavy wave of migration observed Mar. 16; many flocks of mixed snow & blue geese travelling northward.

Blue goose (*Chen caerulescens*)

First migration: Mar. 7; mixed flock of 200 blue and snow geese observed on upper lake.

Period of max. abundance & Numbers: Mar. 15-20; 2000 birds at refuge. Later flight, Apr. 1-10, about 1000 birds at refuge.

Last observed as migrant: Small flocks of (mixed) blue & snow geese present as late as April 20.

Remarks: Largest number of blue geese observed at height of migration included about 2000 birds, in mixed flocks with the lesser snow goose. Usually outnumbered snow geese about 5 to 1. Heavy wave of migration on Mar. 16; flocks of snow & blue geese passing over.

Common mallard (*Anas platyrhynchos*)

First migration: Jan. 26, some migration of local nature; flock of birds evidently returning from Missouri River bottoms to the refuge. Estimate 8000 birds observed this date. Some migration observed from Feb. 1-22, estimate 10 to 15,000 mallards concentrated at refuge during this time. The main wave of migration began Mar. 3 when the birds began to return after the severe weather of late February.

Period of max. abundance & Number: Mar. 8-20, estimate 20,000 mallards concentrated at refuge during this period.

Black Duck (*Anas rubripes*)

Remarks: Small numbers of black duck observed among flocks of common mallard from Mar. 10-25. Not over 500 birds observed during migration.

Gadwall (*Chaulelasmus streperus*)

First migration: March 8

Period of max. abundance & Numbers: Mar. 15-25; estimate 500 birds at refuge during this period.

Last observed as migrant: April 10.

Baldpate (*Mareca americana*)

First migration: Mar. 8; small scattered flocks observed among other migrants.

Period of max. abundance & Numbers: Mar. 15-31; 1000 birds.

Last observed as migrant: April 10.

American pintail (*Dafila acuta tzitzihua*)

First migration: The early migration began Feb. 20. Estimate 300 birds at refuge. Early migrants driven away by blizzard of Feb. 22-23; main wave of migration began Mar. 1.

Period of max. abundance & Numbers: March 10-20; 50,000 birds.

Last observed as migrant: Few birds remained up to Apr. 20.

Green-winged teal (*Nettion carolinense*)

First migration: March 6

Period of max. abundance & Numbers: Mar. 10-26, 500 birds.

Last observed as migrant: A few scattered birds remained as late as April 15.

- Blue-winged teal (*Querquedula discors*)

First migration: March 15

Period of max. abundance & Number: Apr. 10-15, 3,000 birds.

Last observed as migrant: Some birds remaining as late as April 20.

Shoveller (*Spatula clypeata*)

First migration: Mar. 15; appearing on marshes at east end of refuge.

Period of max. abundance & Numbers: Mar. 25 to Apr. 10; estimate 3000 birds.

Last noted as migrant: Small number of shovellers remaining at refuge April 20.

Wood duck (*Aix sponsa*)

First migration: March 15

Remarks: Small flocks of 15 to 30 birds observed during March & April; no large concentrations noted.

Redhead duck (*Nyroca americana*)

First migration: March 8

Period of max. abundance & Numbers: Mar. 16-25; estimate 300 birds during this period. No large concentrations observed.

Last observed as migrant: April 1.

Ring-necked duck (*Nyroca collaris*)

First migration: March 8

Period of max. abundance & Numbers: March 20 to April 5; 2000 birds.

Last observed as migrant: April 14.

Remarks: Most abundant of diving ducks in this area this season.

Lesser scaup duck (*Nyroca affinis*)

First migration: March 8

Period of max. abundance & Numbers: Mar. 15-28; 1,000 birds.

Last observed as migrant: March 31.

Bufflehead (*Charionetta albeola*)

First migration: March 9; single bird observed on borrow pit along east levee.

Remarks: Small flocks of 4 to 10 birds observed from time to time from March 8 to Apr. 15. These birds were not abundant at any time, passing through in small numbers.

Hooded merganser (*Lophodytes cucullatus*)

First migration: March 5

Remarks: Small numbers of this species observed from Mar. 5 to 30th. No large concentrations observed; only scattered birds or small flocks.



American merganser (*Mergus merganser americanus*)

First migration: Feb. 2; noted flocks of 50-100 birds on upper pool.

Period of max. abundance & Number: Feb. 8-25; estimate 800 birds present on refuge.

Last noted as migrant: April 5.

Remarks: Largest concentration observed to date. Only small flocks or individual birds noted during previous years. Few birds noted as late as Apr. 5.

A small number of Canada geese wintered at the refuge this year, feeding in cornfields and resting in the open water around a control gate outlet and in open areas on the upper lake.

Concentrations of 500-800 American mergansers were noted on the upper pool throughout February. Only a few individuals or small flocks of this species were noted in previous years.

Migratory waterfowl passing through this area during the spring flight tended to scatter widely over flooded bottomlands this season, making comparison with previous spring flights difficult. The flight of geese, however, seemed definitely lighter than that of last season. Some species of ducks such as pintails, mallards, and shovelers, appeared in their usual numbers; and others, chiefly diving ducks, appeared in smaller numbers than usual.

Mallards, wood ducks, and blue-winged teal have remained in some numbers this season after the spring flight. Several mallard nests have been discovered to date, and apparently all three species are nesting here.

Large flocks of herring gulls, cormorants, and pelicans appeared at the refuge this spring. These birds concentrated in large numbers around the control gate and spillway on the upper pool, feeding on the schools of fish collecting at these outlets.

B. Upland Game Birds

About 250 prairie chickens wintered at the refuge this season and booming activities were observed from late February on, the birds congregating on levees or knolls in open fields during this season. We have found that winter wheat fields attract the birds at this season, and efforts are made each year to sow a winter grain field on favored booming grounds to keep down weed or brush growth and provide open areas for this purpose.

Quail apparently survived the winter without serious losses. One flock of 18 wintered on the headquarters grounds. A quail demonstration area is now under development at headquarters; and plantings of wild plum, cedar, buckbrush, etc. made this spring on the grounds are already providing cover in the courtyard and attracting both song and game birds.

C. Big Game

(none)

D. Fur Bearers

Fur bearers and predators present at the refuge include opossum, muskrat, mink, spotted and striped skunk, raccoon, fox, and coyote. Muskrats have increased noticeably on the upper lake but are not present in sufficient numbers to warrant

share trapping or other control measures. The animals have so far confined their activities to shallow water and islands some distance from the levees, and no evidence of tunneling in the dykes has been noted to date.

Mink signs are frequently noted in the field and several animals were discovered under piles of junk during cleanup of old farm sites. Some trapping of both mink and muskrat may be justified by the next fur season.

A few coyotes are usually present on the area, chiefly animals driven in by hunters and hounds operating near the refuge. Control measures are undertaken as needed for these animals, but rabbits and small rodents have been the principal prey of these predators.

No fur animals were taken this season, as the Laborer-Patrolman who handles this activity was absent on sick leave during the trapping season.

E. Fish

Fish are appearing in considerable numbers in the upper pool and in the channels below the control gates and upper spillway. Large numbers of bullheads, crappie, and some channel catfish have been naturally stocked in the refuge pools by flood waters. A plan covering future public fishing, stocking, and proposed fishing areas, will be submitted to the Service at a future date.



### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development

A "Type 803" barn has been constructed at headquarters for stabling livestock at this site. This structure provides facilities for stabling saddle horses which may be needed in the future, and space for livestock kept by personnel.

Approximately 350 yds. of rock were quarried, crushed, and hauled to a stock pile at the refuge for road surfacing purposes.

One mile of boundary fencing was erected along the west line of the refuge, from headquarters to Elk Creek.

Riprap and grading work at the lower spillway were finished, and all water control structures are now complete, including the upper and lower spillways and two control gates originally planned for the area.

The above projects were completed by CCC during this period.

#### B. Plantings

Acquatics - None planted to April 30.

Trees and Shrubs -

<u>Species Planted</u>	<u>Number</u>	<u>Location</u>
Osage orange ✓	18,000	Tract 75, Tract 33
Catalpa ✓	2,000	" "
Red cedar ✓	3,000	Tract 33 & 21
Red osier dogwood ✓	2,000	Tract 81
Tartarian honeysuckle ✓	5,000	Tract 33
Highbush cranberry ✓	10	Hdqts. courtyard
Mulberry ✓	500	Tract 21
Total	30,510	

The above plantings include a total amount of nursery stock planted by CCC and WPA and stock set out by farming cooperators. In addition to the above plantings of nursery stock, approximately 5,000 trees and shrubs, including elm, ash, red cedar, pecan, and buckbrush, were dug at the refuge and transplanted by WPA for landscaping purposes and to establish cover.

During the recent planting season, efforts were made to break up old fields by planting hedges along old fence lines, roads, etc. All stock except transplanted material set along rail fencing, was planted in rows to permit cultivation through the summer.

Distribution, Receipts, Seed & Nursery Stock -

<u>Species</u>	<u>Distr.</u>	<u>Amount</u>	<u>Destination</u>	<u>Date Shipped</u>
P. pennsylvanicum	✓	300#	St. Marks	3/16/42 (freight)
"		200#	Salt Plains	"
"		500#	White River	"
"		600#	Seney	"
"		200#	Reelfoot	"
"		200#	Big Lake	"
(Total - 2,000 lbs.)				

Echinocloa crus-galli	✓	500#	Seney	3/16/42 (freight)
"	"	200#	Boulder Canyon	"
"	"	200#	Blackwater	5/1/42

<u>Seed Rec'd</u>	<u>Amount</u>	<u>Source</u>	<u>Date Rec'd</u>
Potamogeton americanus	15#	✓ Upper Miss.	3/23/42
Nais. sp.	5 bags	✓ Tamarac	4/30/42

<u>Nursery Stock Rec'd</u>				
<u>Species</u>	<u>Amt.</u>	<u>Source</u>	<u>Delivery</u>	<u>Rec'd</u>
Highbush cranberry	10	Lower Souris	Express	4/21/42
Red cedar	3,000	"	"	"
Red-osier dogwood	2,000	"	"	"
Tartarian honeysuckle	5,000	"	"	"
Osage orange	10,000	State Cons. Comm.	Truck	4/7/42
Mulberry	500	"	"	"
"	8,000	Special use permittee	"	March, '42
Catalpa	2,000	"	"	"

#### IV. PUBLIC RELATIONS

The refuge recreational area was opened in April and about 200 persons used public picnic facilities on the grounds during the latter half of that month. The total number of visitors at the refuge during this 3-month period was estimated at 350 persons.

During National Wildlife Restoration Week, refuge personnel exhibited motion pictures of waterfowl at Swan Lake before audiences totalling about 250 persons, at two local public schools. The press release received from the Service was taken to a local daily newspaper at Brookfield, Mo. for publication and appeared in the April 10 issue of that paper.

Official visitors at the refuge included Mr. F. C. Gillett of the Regional office who inspected the refuge March 14; and Mr. Earl Powell, WPA District Engineer. State officials visiting the area this quarter included Conservation Agents Fred Bickel and R. L. McKinney, and County Sheriff Leo Widmer.

#### V. ECONOMIC USES OF REFUGE

##### Grazing, Haying, Fur Harvest, Commercial Fishing

(No activities under the above during quarter)

##### Timber Removal

Approximately *5000* ~~64~~ feet of timber - burf oak and pin oak - were removed for sawing dragline mats. This project was handled by CCC. One special use permit was issued covering sale of 6 cords wood for fuel, revenue collected on this permit was \$4.50.

##### Cooperative Farming

Three cooperative farming permits were issued covering cultivation of approximately 390 acres of refuge land during the 1942 season.



One permit involved planting of 10,000 trees as the refuge portion of the crop, and it is believed this type of agreement will be very satisfactory in the future.

VI. OTHER ITEMS

The Swan Lake CCC Camp will be closed May 12, after completing nearly four and one-half years work at the refuge.

The 10-man WPA project will remain in operation as far as is now known and will continue work on seeding and sodding of levees, fencing, planting of aquatic vegetation, seed collection, and related projects.


  
Kenneth K. Krumm  
Jr. Refuge Manager



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Kenneth E. Lamm  
Refuge Manager

